

UNCLASSIFIED

EXHIBIT R-2, FY 2001 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
21427 Surface Tactical Team Trainer (STTT)	11,474	11,083*	4,196	5,679	5,718	6,307	6,945	CONT.	CONT.
W0431 Tactical Aircrew Combat Training System (TACTS)	2,811	2,732	1,585	0	0	0	0	0	56,989***
W0604 Training Range and Instrumentation Development (TRID)	2,043	1,626	1,759	3,552	3,284	3,037	3,096	CONT.	CONT.
W1998 Joint Tactical Combat Training System (JTCTS)	14,837**	7,828	7,783	5,909	4,962	5,046	5,170	CONT.	CONT.
W2124 Air Warfare Training Development (AWTD)	1,780	2,119	2,157	1,918	2,149	2,201	2,246	CONT.	CONT.
X1823 Training and Modeling Systems (TMS)	9,783	8,177	9,579	9,077	8,631	7,457	7,636	CONT.	CONT.
TOTAL	42,728	33,565	27,059	26,135	24,744	24,048	25,093	CONT.	CONT.
Quantity of RDT&E Articles	0	0	3	0	0	0	1		

* Controls reflect an FY00 \$7.5M Congressional add for Battle Force Tactical Training (BFTT) executed under 22449.

** The FY 1999 budget reflects a \$8,054K Congressional add for Rangeless Training System technical evaluation (executed under project unit W2660).

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EXHIBIT R-2, FY 2001 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROGRAM ELEMENT TITLE: Consolidated Training Systems Development

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The STTT will develop the Battle Force Tactical Training (BFTT) System to provide realistic joint warfare training including a means to link ships together for coordinated Combat System team training using Distributed Interactive Simulation (DIS) protocols.

TACTS provides real-time monitoring and post-exercise debrief of aircrews flying on instrumented training ranges. This system is the primary training tool used by the Naval Strike and Air Warfare Center and the Marine Aviation Weapons and Tactics Squadron.

The TRID program provides development of many range systems including range electronic warfare simulator, advanced weapons training systems, laser training systems, Large Area Tracking Range (LATR), and shallow water range technology.

JTCTS is planned to provide U.S. Navy fleet deployable instrumentation for at sea surface, subsurface, air training and tactics development, and fixed/transportable air range instrumentation for U.S. Navy and U.S. Air Force air training and tactics development. JTCTS incorporates the Defense Modeling and Simulation Office sponsored Distributed Interactive Simulation Protocol Data Unit for interoperability with Navy and other service live, virtual (simulators), and constructive (war games) simulations. JTCTS will initially deliver prototype hardware/software for a mobile/rangeless capability for a Carrier Air Wing 5 (CAG-5) after undergoing development/operational testing. It will further develop, test, and field fixed air range and fixed fleet range hardware/software in subsequent phases of the program. This summary reflects only the USN funding component of the JTCTS.

The AWTD program provides development of many aviation training systems including mission rehearsal simulation technologies and the Aviation Training Technology Integration Facility (ATTIF).

The TMS encompasses the requirements analysis and software development associated with the Navy's Maritime Development Agent function as part of the Joint Simulation System (JSIMS). The BFTT will develop the BFTT Electronic Warfare Trainer (BEWT) and applicable BFTT system software to provide EW operator and team training for Fleet EW Systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2000			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA7	PROGRAM ELEMENT NAME AND NUMBER Consolidated Training Systems Development/0204571N				PROJECT NAME AND NUMBER Surface Tactical Team Trainer (STTT)/21427					
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
COST (\$ in Millions)										
Project Cost		11.474	11.083	4.196	5.679	5.718	6.307	6.945	CONT.	CONT.
RDT&E Articles Qty		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
A. Mission Description and Budget Item Justification. The Battle Force Tactical Training (BFTT) Program provides realistic joint warfare training across the spectrum of armed conflict; realistic unit level team training in all warfare areas; a means to link ships together which are in different homeports for coordinated training; external stimulation of shipboard training systems; and simulation of non-shipboard forces. BFTT uses a distributed architecture, integrating existing training systems, and uses Distributed Interactive Simulation (DIS) protocols, with planned migration to High Level Architecture (HLA). BFTT provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system team training as an integral part of the Afloat Training Organization. BFTT provides a baseline capability/system that meets the Operational Requirements Document (ORD). Stimulator/Simulators (STIM/SIM) provides standardized Radio Frequency (RF), Intermediate Frequency (IF), and/or Digital injection into surface ship radars and fire control systems for training of shipboard operators/teams as part of the BFTT System. The BFTT Electronic Warfare Trainer (BEWT) development effort will provide embedded operator and team electronic emissions recognition training capability, integrated into BFTT. Migrate BFTT software from UNIX/TAC based system to Windows-NT/PC. FY 1999 ACCOMPLISHMENTS: - (\$1.421) BFTT - Developed software required as a result of lessons learned/additional Fleet requirements since BFTT IOC to include SG&C, Display & Debrief, Entity Motioning and Modeling (EM&M) improvements and the initial interface to the Generic Navy Stimulator/Simulator (GNSS). - (\$.500) BFTT/HLA - Initiated conversion of the DIS protocol based software to the HLA mandated architecture for the Performance Monitoring portion of the BFTT software in accordance with DoD directives. - (\$1.300) STIM/SIM – Completed development of the MK 91 NATO Sea Sparrow Missile System Stimulator. - (\$2.445) - BEWT - Integrated the BEWT into BFTT. - (\$5.808) - Windows NT – Migrated BFTT Software from UNIX/TAC based system to Windows-NT/PC. FY 2000 PLANS: - (\$1.125) BFTT - Develop tactical link interface/simulation software and fleet-driven requirements into BFTT. Develop stand-alone objective based training software for scenario development. - (\$2.500) HLA - Continue conversion of the DIS protocol based software to the HLA mandated architecture for the Scenario Generation and Control portion of the BFTT software in accordance with DoD directives. - (\$7.458) BFTT Windows NT – Migration of BFTT software to Windows NT from UNIX OS.										

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EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2000
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER	
RDT&E, N/BA7	Consolidated Training Systems Development/0204571N	Surface Tactical Team Trainer (STTT)/21427	
FY 2001 PLANS:			
- (\$2.496) BFTT - Develop link software, develop/integrate new software capabilities, and automate debrief products.			
- (\$1.700) HLA – Continue conversion of the DIS protocol based software to the HLA mandated architecture for the Entity Monitoring and Modeling portion of the BFTT software in accordance with DoD directives.			
B. Program Change Summary:			
	<u>FY 99</u>	<u>FY00</u>	<u>FY 01</u>
FY 2000 President's Budget:	5.964	4.361	4.660
Appropriated Value:	11.964	11.261	
Adjustment to FY 1999/2000 Appropriated Value/ FY 2000 President's Budget			
(a) Revised Economic Assumptions	-0.028		
(b) FY 99 Cong Add: BFTT Conversion	6.000		
(c) Inflation Savings	-0.054		
(d) Civilian Personnel Under Execution	-0.005		
(e) FY 99 SBIR/STTR Transfer	-0.271		
(f) FY 99 Midyear Review BTRs	-0.116		
(g) Actual Update Nov 99	-0.015		
(h) FY 99 BTRs	-0.001		
(i) FY 00 Cong Add: BFTT Conversion		7.500	
(j) Restore Issue 62288 Outsourcing		0.006	0.041
(k) SSP Contracts		-0.025	-0.308
(l) NWCF Rates			0.011
(m) BSO Realignment			-0.151
(n) Balance to R-1 (Issue 66212)		-0.697	
(o) Across-the-Board Reduction		-0.062	
(p) ICC 0611 (NSWC) : PBD411			0.009
(q) Nonpay Pur Inflation: PBD604			-0.055
(r) Active Navy Ops: PBD022C2			-0.011
FY 2001 President's Budget Submit:	11.474	11.083	4.196

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EXHIBIT R-2a, RDT&E Project Justification							DATE:			
							February 2000			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER					
RDT&E, N/BA7		Consolidated Training Systems Development/0204571N			Surface Tactical Team Trainer (STTT)/21427					
Funding: The FY 1999 net increase of +\$5.510M was a result of revised economic assumptions (-\$.028M), a FY 99 Congressional Add for BFTT conversion +\$6.000M, a FY 99 SBIR/STTR transfer (-\$.271M), a Civilian Personnel under-execution mark of (-\$.005M), a FY 99 Midyear Review BTR decrease of (-\$.116M), an Inflation Savings decrement of (-\$.054M), and Actual Update in November 1999 decrement of (-\$.015M), and a FY 99 BTR decrease of (-\$.001M). The FY 2000 net increase of +6.722M includes a restoration of outsourcing +\$.006M, a SSP Contracts decrement of (-\$.025M), a Balance to R-1 decrease of (-\$.697M), an across-the-board reduction of (-\$.062M), and a congressional plus up of +7.500M. The FY 2001 net decrease of (-\$.464M) includes a restoration of outsourcing Issue +\$.041M, a SSP Contracts decrement of (-\$.308M), a NWCF Rate increase of +.011M, a BSO realignment decrease of (-\$.151M), a restoration of ICC 0611 (NSWC) of +\$.009M, a Nonpayroll related purchase inflation decrease of (-\$.055M), and a reduction for Active Navy Operations of (-\$.011M).										
Schedule: Not Applicable.										
Technical: Not Applicable.										
C. Other Program Funding Summary:										
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Complete	Total Cost
	OPN Line 276200	23.867	38.581	16.430	37.754	24.150	20.906	23.746	CONT	CONT
	O&MN Line 3B4K	8.859	9.041	10.056	9.734	9.348	9.468	9.707	CONT	CONT
Related RDT&E: Not Applicable.										

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EXHIBIT R-2a, RDT&E Project Justification

DATE:
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APPROPRIATION/BUD
GET ACTIVITY

PROGRAM ELEMENT NAME AND NUMBER

PROJECT NAME AND
NUMBER

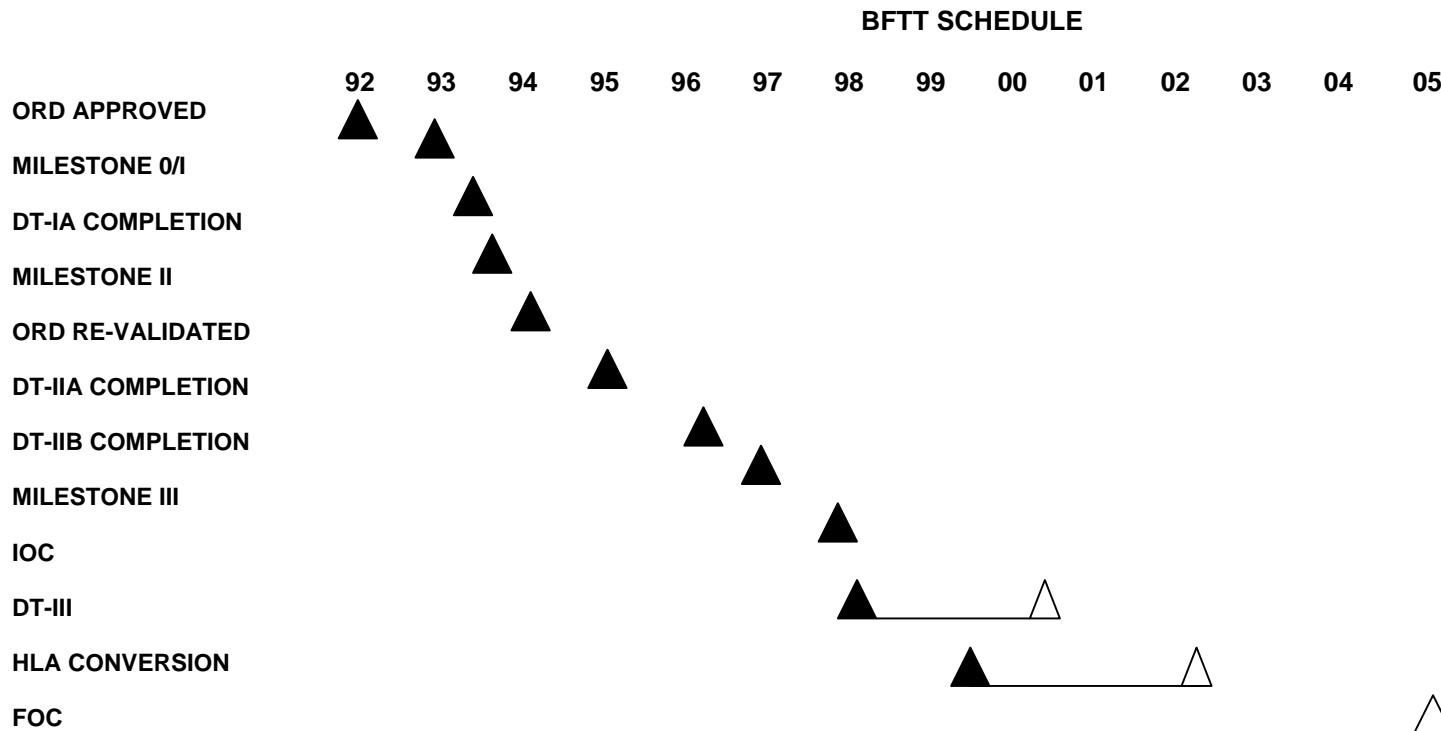
RDT&E, N/BA7

Consolidated Training Systems
Development/0204571N

Surface Tactical Team
Trainer (STTT)/21427

D. Acquisition Strategy: The BFTT Program is designated as an ACAT IV-M Program consisting of four (4) phases - Concept Exploration and Definition, Demonstration and Validation, Engineering and Manufacturing Development, and Production and Deployment.

E. Schedule Profile:



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Exhibit R-3 Cost Analysis (page 1)							DATE: February 2000					
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA7			PROGRAM ELEMENT Consolidated Training Systems Development/0204571N			PROJECT NAME AND NUMBER Surface Tactical Team Trainer – 21427						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	**	AAI/MD, EWA/WV	10.024	1.490	**	0.000		0.000		0.000	11.514	11.514
Ancillary Hardware Development				0.400		0.600				0.000	0.400	1.000
Systems Engineering	WR/RCP	MULTIPLE	11.101	3.045		3.550		0.700		CONT	CONT.	N/A
Licenses	WR/RCP	MULTIPLE	1.950	0.062		0.025		0.035		CONT	CONT.	N/A
Tooling												
GFE			2.500							0.000	2.500	2.500
Award Fees			0.197	0.160						0.000	0.357	0.357
Subtotal Product Development			25.772	5.157		4.175		0.735		CONT.	CONT.	N/A
Remarks: * PY total also includes NSWC PHD and NSWC DD ** AAI Contract Award 3/98 CPIF, EWA Contract Award 6/98 CPFF												
Development Support Equipment												
Software Development	Various	MULTIPLE	15.534	5.200		5.963		3.026		CONT	CONT.	N/A
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data	WR/RCP	MULTIPLE	5.741	0.660		0.645		0.385		CONT	CONT.	N/A
GFE												
Subtotal Support			21.275	5.860		6.608		3.411		CONT.	CONT.	N/A
Remarks:												

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**Exhibit R-3, RDT&E Cost Analysis
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Exhibit R-3 Cost Analysis (page 2)								DATE: February 2000				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA7			PROGRAM ELEMENT Consolidated Training Systems Development/0204571N			PROJECT NAME AND NUMBER Surface Tactical Team Trainer – 21427						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 99 Cost	FY 99 Award Date	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	Cost to Complete	Total Cost	Target Value Of Contract
Developmental Test & Evaluation	WR/RCP	NSWC Crane/PHD	3.100	0.157		0.000		0.050		CONT.	CONT.	N/A
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			3.100	0.157		0.000		0.050		CONT.	CONT.	N/A
Remarks:												
Contractor Engineering Support												
Government Engineering Support	WR/RCP	NSWC PHD	1.583	0.300		0.300		0.000		0.000	2.183	2.183
Program Management Support												
Travel												
Labor (Research Personnel)												
Overhead												
Subtotal Management			1.583	0.300		0.300		0.000		0.000	2.183	2.183
Remarks:												
Total Cost			51.730	11.474		11.083		4.196		CONT.	CONT.	N/A
Remarks:												

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**Exhibit R-3, RDT&E Cost Analysis
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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W0431

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Tactical Aircrew Combat Training
System (TACTS)

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
W0431 Tactical Aircrew Combat Training System (TACTS)	2,811	2,732	1,585	0	0	0	0	0	56,989*
TOTAL	2,811	2,732	1,585	0	0	0	0	0	56,989*

Quantity of RDT&E Articles: Not Applicable.

* This amount includes FY90-FY01.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops new TACTS capabilities primarily through the integration of additional types of aircraft and weapons. This requires development of new aircraft interfaces, weapons and countermeasures simulations, and modifications to displays. Software is also developed to produce computer generated Electronic Warfare (EW) threats to enhance the system's ability to provide training in a realistic EW environment. Various other system performance improvements are also developed to make the system more effective and reliable.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1999 ACCOMPLISHMENTS:

- (U) (\$1,000) Weapons Integration - Continued development of a training capability for Joint Stand-Off Weapon (JSOW).
- (U) (\$1,571) System Upgrades - Continued development of block 5.2 software for Control and Computation Subsystem (CCS) and A10 software for P4A Aircraft Instrumentation Subsystem (AIS).
- (U) (\$ 240) Studies/Analysis/T&E - Completed studies and analysis of block 5.2 hardware requirements/design and A10 software requirements.

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W0431

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Tactical Aircrew Combat Training
System (TACTS)

2. FY 2000 PLAN:

- (U) (\$ 824) Weapons Integration - Complete development of the JSOW training capability for the F/A-18. Develop a similar training capability for the Joint Direct Attack Munitions (JDAM) weapon. Begin integration of JSOW/JDAM within TACTS software builds.
- (U) (\$1,416) System Upgrades- Complete the development of block 5.2 CCS software and A10 P4A AIS software. Develop software modifications to enhance TACTS tracking in areas of marginal coverage. Develop and complete enhancements to the Advanced Display and Debriefing Subsystem in accordance with fleet requirements. Develop block A05 and K05 AIS/AIS Internal (AISI) software variants. Begin the development of CCS software version 6.0.
- (U) (\$ 492) Studies/Analysis/T&E – Begin testing of block 5.2 software and hardware. Develop test procedures for Advance Display and Debriefing Subsystem (ADDs) Enhancement verification. Develop test procedures for A05/K05 AIS/AISI upgrades.

3. FY 2001 PLAN:

- (U) (\$600) Weapons Integration – Complete integration of JSOW/JDAM within TACTS software builds.
- (U) (\$765) Systems Upgrades – Complete integration of block 5.2 CCS software and hardware. Complete development and testing of CCS software version 6.0.
- (U) (\$220) Studies/Analysis/T&E – Complete 5.2 range acceptance testing. Conduct ADDs enhancement testing and verification. Conduct testing and verification of AIS/ AISI upgrades at TACTS Ranges. Complete acceptance testing of JSOW/JDAM capabilities.

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W0431

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Tactical Aircrew Combat Training
System (TACTS)

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	2,934	2,747	1,714
(U) Appropriated Value:	3,069	2,747	
(U) Adjustments from President's Budget:	-123	-15	-129
(U) FY 2001 President's Budget Submit:	2,811	2,732	1,585

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1999 decrease of \$123 thousand reflects a \$51 thousand reduction for Small Business Innovative Research (SBIR) Assessment, a \$14 thousand reduction for inflation savings, and a \$58 thousand reduction for reprioritization of requirements within the Navy. The FY 2000 decrease reflects a \$15 thousand reduction for an Across-the-Board Congressional recision. The FY 2001 net decrease of \$129 thousand reflects a net decrease of \$2 thousand due to Strategic Sourcing Plan savings and Navy Working Capital Fund (NWCF) adjustments, a \$115 thousand reduction for reprioritization of requirements within the Navy, a \$13 thousand decrease for revised economic assumptions, and a \$1 thousand increase for Military and Civilian Pay.

(U) Schedule: The following milestones have been changed due to program restructure:

From	To
A10 DT-II 4Q99/1Q00	A10 DT-II 4Q99/2Q00
Blk 5.2 DT-II 4Q99/1Q00	Blk 5.2 DT-II 4Q99/2Q00

(U) Technical: Not Applicable.

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DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W0431

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Tactical Aircrew Combat Training
System (TACTS)

(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

Related RDT&E

(U) P.E. 0604735F (Range Improvement) - Includes funding for joint efforts with USAF.

(U) C. ACQUISITION STRATEGY: The TACTS program is a non-ACAT program. The integrated program teams that develop new TACTS capabilities include contractors whose products and services are obtained by means of competitive award, indefinite deliveries/indefinite quantity, and cost-type contracts. Individual delivery orders are awarded for specific development efforts.

(U) D. SCHEDULE PROFILE

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY2001</u>	<u>To Complete</u>
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones	4Q99/2Q00 A10 DT-II 4Q99/2Q00 Blk 5.2 DT-II		2Q/3Q-01 A05/K05 DT-II 2Q/3Q-01 Blk 6.0 DT-II	
(U) Contract Milestones				

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EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W0431

PROJECT TITLE: TACTS

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>*Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Systems/Software Development	Various	Various	31,474	2,521	1Q/99	2,190	1Q/00	1,265	1Q/01	0	37,450	
Systems Engineering (Misc. less \$1M)												
Subtotal Project Development			31,474	2,521		2,190		1,265		0	37,450	
Remarks												
Miscellaneous	Various	Various	3,645	50	1Q/99	50	1Q/00	100	1Q/01	0	3,845	
Subtotal Support			3,645	50		50		100		0	3,845	
Remarks												
Miscellaneous	Various	Various	14,742	240	1Q/99	492	1Q/00	220	1Q/01	0	15,694	
Subtotal Test & Evaluation			14,742	240		492		220		0	15,694	
Remarks												
Subtotal Management			0	0		0		0		0	0	
Remarks												
Total Cost			49,861	2,811		2,732		1,585		0	56,989	

* This amount includes FY90-FY98.

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Exhibit R-3, RDT&E Cost Analysis
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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W0604

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT TITLE: Training Range and
Instrumentation Development
(TRID)

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
W0604 Training Range and Instrumentation Development (TRID)	2,043	1,626	1,759	3,552	3,284	3,037	3,096	CONT.	CONT.
TOTAL	2,043	1,626	1,759	3,552	3,284	3,037	3,096	CONT.	CONT.

Quantity of RDT&E Articles: Not Applicable.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops specialized instrumentation systems for fleet readiness training while minimizing life cycle costs. Tasks include development of the following: electronic warfare simulators and associated subsystems, target control systems, Large Area Tracking Range (LATR) improvements, underwater technology, ranges interoperability and information architecture, shallow water range activity which includes establishment of capability at Pacific Missile Range Facility Shallow Water Training Range (PMRF SWTR) and assorted Advanced Weapons Training Systems (AWTS), such as Imaging Weapons Training Systems (IWTS), Remote Strafe Scoring System (RSSS), and weapon and countermeasure simulations for use with various range training systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1999 ACCOMPLISHMENTS:

- (U) (\$733) Completed development of Imaging Weapons Training Systems (IWTS) Pre-Planned Product Improvement (P³I). Conducted testing of RSSS Product Improvement Program (PIP).
- (U) (\$483) Continued technology development for Continental United States Shallow Water Ranges. Completed test and evaluation of PMRF SWTR.
- (U) (\$369) Continued systems definitions, development of specifications, analysis of concepts, and systems engineering for various projects. Continued systems engineering efforts for range integration and continued development of common range architecture to meet High Level Architecture (HLA) standards. Conducted analyses of design data to ensure that Tactical Training Range (TTR) programs are logistically supportable.
- (U) (\$458) Commenced development of LATR Block 3.0 software upgrade, aircraft integration requirement analyses, prototype developments and testing, and developing LATR system hardware upgrades.

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W0604

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT TITLE: Training Range and
Instrumentation Development
(TRID)

2. FY 2000 PLAN:

- (U) (\$522) Commence development of a singular display and debrief capability for all tactical training ranges systems to provide a common operating environment (COE) for the efficient life cycle support. This singular display and debrief capability will support the real-time and post exercise capability, as well as the Information Technology of 21st Century (IT-21) initiative. The capability will be based on machine independent code that can be hosted on personal computers. Obtain MS III decision for RSSS Product Improvement Program (PIP).
- (U) (\$521) Commence development of the HLA and Training Enabling Architecture (TENA) for the tactical training ranges systems. Begin development of the modeling and simulation of the west coast training ranges communication systems. Commence development and integration of the tactical training ranges with Command, Control, Communication, Computers and Information (C4I) Global Command and Control System (GCCS). Research integration of embedded instrumentation and tactical training range system with Battle Force Tactical Training (BFTT).
- (U) (\$583) Complete development of LATR Block 3.0 software upgrade, and commence development of Block 4.0 software upgrade. Continue aircraft integration requirements analyses, prototype development and testing, and developing LATR system hardware upgrades.

3. FY 2001 PLAN:

- (U) (\$443) Continue development of the display and debrief COE. Establish application program interface which will allow various users to interface to the COE.
- (U) (\$394) Continue development of the HLA and TNA for the tactical training ranges systems. Continue development of the modeling and simulation of the training range communication systems. Continue development and integration of the tactical training ranges with C4I, GCCS, and BFTT.
- (U) (\$250) Complete development of LATR Block 4.0 software upgrade and continue analyses of aircraft integration requirements, prototype development and testing, and developing LATR system hardware upgrades.
- (U) (\$492) Commence research and engineering required to transition Imaging Weapons Training System to a deployable configuration.
- (U) (\$180) Commence development of an update to the existing simulations for the AIM-7M (sparrow) and AIM9/M (sidewinder). (These simulations are used in multiple training systems).

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DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT NUMBER: W0604

PROJECT TITLE: Training Range and
Instrumentation Development
(TRID)

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	2,113	1,635	3,425
(U) Appropriated Value:	2,195	1,635	
(U) Adjustments from President's Budget:	-70	-9	-1,666
(U) FY 2001 President's Budget Submit:	2,043	1,626	1,759

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1999 decrease of \$70 thousand reflects a \$23 thousand reduction for Small Business Innovative Research (SBIR) assessment, a \$10 thousand reduction for inflation savings, a \$13 thousand reduction for Contract and Advisory Services, and a \$24 thousand reduction for reprioritization of requirements within the Navy. The FY 2000 decrease reflects a \$9 thousand reduction for an Across-the-Board Congressional recision. The FY 2001 net decrease of \$1,666 thousand reflects a \$1,537 thousand reduction for reprioritization of requirements within the Navy, a net decrease of \$110 thousand due to Strategic Sourcing Plan savings and Navy Working Capital Fund (NWCF) adjustments, a \$20 thousand decrease for revised economic assumptions, and a \$1 thousand increase for Military and Civilian Pay.

(U) Schedule: The following milestones have changed due to program restructure.

From:	To:
RSSS PIP MSIII 2Q/99	RSSS PIP MSIII 2Q/00
Block 3.0 LATR Upgrade IOC 1Q/00	Block 3.0 LATR Upgrade IOC 2Q/00

(U) Technical: Not Applicable.

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W0604

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT TITLE: Training Range and Instrumentation Development (TRID)

(U) C. OTHER PROGRAM FUNDING SUMMARY

Appn	FY 1999 Actual	FY 2000 Budget	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	To Complete
(U) OPN/P-1 Weapons Range Support Equipment	1,227	5,669	5,882	22,834	22,965	16,591	17,805	CONT.

Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY: The TRID program is a non-ACAT program. The integrated program teams that develop new TRID capabilities include contractors whose products and services are obtained by means of competitive award, indefinite deliveries/indefinite quantity (IDIQ), and cost-type contracts. Individual delivery orders are awarded for specific development efforts.

(U) D. SCHEDULE PROFILE

	<u>FY1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To Complete</u>
(U) Program Milestones	1Q SWR Phase I IOC	2Q Block3.0 LATR Upgrade IOC 2Q RSSS PIP MS III	1Q Block 4.0 LATR Upgrade IOC	4Q/02 IWTS IOC
(U) Engineering Milestones			4Q AIM-7/9 SIM Upgrade SRR	2Q/02 AIM-7/9 Upgrade PDR
(U) T&E Milestones	4Q/99-1Q/00 P ³ I DT-II 4Q Block 3.0 LATR Upgrade DT III	4Q Block 4.0 LATR Upgrade DT III		
(U) Contract Milestones				

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EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER:

W0604

PROJECT TITLE:

TRID

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Systems Engineering and Software Development (Misc. less than \$1M)	Various	Various	78,591	1,154	1Q/99	1,276	1Q/00	1,357	1Q/01	CONT.	CONT.	
Subtotal Project Development			78,591	1,154		1,276		1,357		CONT.	CONT.	
Remarks												
Miscellaneous	Various	Various	10,288	204	1Q/99	250	1Q/00	302	1Q/01	CONT.	CONT.	
Subtotal Support			10,288	204		250		302		CONT.	CONT.	
Remarks												
Miscellaneous	Various	Various	0	685	1Q/99	100	1Q/00	100	1Q/01	CONT.	CONT.	
Subtotal Test & Evaluation			0	685		100		100		CONT.	CONT.	
Remarks												
Subtotal Management			0	0		0		0	0	0		
Remarks												
Total Cost			88,879	2,043		1,626		1,759		CONT.	CONT.	

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

Date: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W1998

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
W1998 Joint Tactical Combat Training System (JTCTS)									
	14,837*	7,828	7,783	5,909	4,962	5,046	5,170	CONT.	CONT.
TOTAL	14,837	7,828	7,783	5,909	4,962	5,046	5,170	CONT.	CONT.
Quantity of RDT&E Articles	0	0	3	0	0	0	1	CONT.	CONT.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Tactical Combat Training System (JTCTS) is planned to provide fixed, transportable, and mobile range instrumentation for the USN and USAF for both shore-based and deployable applications. The fixed application provides shore-based tactical aircrew training while the mobile application will provide deployable at-sea single platform to multi-platform (surface ship, submarine and aircraft) and Naval Expeditionary Force multi-warfare training. To accomplish this, the JTCTS instrumentation is being designed to develop and transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario, track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely exercise feedback. JTCTS is building on technology developed for existing Tactical Training Ranges Systems.

Based on the reduced funding profile that has occurred since the FY98 President's Budget, the JTCTS program has been restructured. The program schedule has been restructured to a phased approach which develops/fields a mobile, rangeless capability first; followed by the development/fielding of a fixed air range capability and finally the development/fielding of a fleet battle group capability. The first phase will meet an urgent fleet requirement for a mobile rangeless air combat capability delivered to Carrier Air Wing Five (CVW-5) in FY00. The CVW-5 requirement will be met by leaving in place the JTCTS development prototype after operational testing. The mobile rangeless engineering and manufacturing development (E&MD) system consists of a "core" for mission control and debrief capability and 12 participant instrumentation packages (PIPs).

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DATE: February 2000

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PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W1998

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

The fixed range phase will begin development in FY01 and continue through FY05. The fixed range "core" will build upon the mobile "core" resulting in a greatly enhanced version that will interface with existing training range systems such as the Integrated Air Defense system. The fixed range phase will culminate in the testing and development of the E&MD core to the Naval Strike Air Warfare Center (NSAWC), NAS Fallon NV. The "core" and interfaces will be supplemented by 115 PIPs procured with Aircraft Procurement Navy (APN) funding. This developmental system will be left in place to satisfy fleet requirements to replace the aging TACTS system at NSAWC Fallon.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1999 ACCOMPLISHMENTS:

- (U) (\$3,635) Continued the E&MD portion of the contract for the mobile rangeless capability to include software/hardware development and contractor acceptance testing.
- (U) (\$1,891) Conducted system platform integration testing. Continued government development operational test preparation.
- (U) (\$1,257) Monitored contractor progress and coordinated subsystem development/test.
- (U) (\$8,054) Conducted a Rangeless Training System integration technical evaluation (project unit W2660).

2. FY 2000 PLAN:

- (U) (\$4,284) Complete E&MD portion of the contract for the mobile rangeless capabilities. Deliver and install mobile rangeless system on CV-63/CVW-5.
- (U) (\$3,544) Conduct government development and operational testing. Monitor contractor hardware/software development and hardware/software integration. Leave prototype JTCTS system in place for fleet use.

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DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W1998

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

3. FY 2001 PLAN:

- (U) (\$5,100) Begin repackaging PIP hardware for surface ship tracking application. Begin development of fixed range application.
- (U) (\$2,683) Monitor contractor hardware/software development.

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	9,412	7,871	7,933
(U) Appropriated Value:	9,442	7,871	
(U) Adjustments from President's Budget:	+5,425	-43	-150
(U) FY 2001 President's Budget Submit:	14,837	7,828	7,783

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1999 net increase of \$5,425 thousand reflects a \$109 thousand reduction (W1998) and a \$402 thousand reduction (W2660) for a Small Business Innovative Research (SBIR) Assessment, a \$136 thousand reduction (W1998) due to a midyear review below threshold reprogramming, a \$31 thousand (W1998) and \$38 (W2660) reduction for inflation savings, a \$2 thousand reduction for reprioritization of requirements within the Navy, a \$143 thousand increase for the CVW5 prototype, and a \$6,000 thousand Congressional add for the Rangeless Training System technical evaluation (executed under W2660). The FY 2000 decrease reflects a \$43 thousand reduction for an Across-the-Board Congressional decision. The FY 2001 net decrease of \$150 thousand reflects a \$49 thousand reduction for reprioritization of requirements within the Navy, a net decrease of \$41 thousand due to Strategic Sourcing Plan savings and Navy Working Capital Fund (NWCF) adjustments, a \$64 thousand decrease for revised economic assumptions, and a \$4 thousand increase for Military and Civilian Pay.

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DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W1998

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT TITLE: Joint Tactical Combat Training System (JTCTS)

CHANGE SUMMARY EXPLANATION CONT.:

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>
(U) OPN/P-1 Weapons Range Support Equipment	0	0	1,600	4,389	2,885	3,877	2,876	CONT.
(U) APN/P-1 Other Production Charges	0	8,230	13,412	14,530	15,037	15,339	15,686	CONT.

Related RDT&E

(U) P.E.: Joint program with USAF Program Element 0604735F

(U) C. ACQUISITION STRATEGY: Due to the restructured acquisition program, we plan on maintaining a cost plus award fee (CPAF) contract for the E&MD and Follow-on Test and Evaluation (FOT&E) efforts through each phase of JTCTS development.

(U) D. SCHEDULE PROFILE: See attached milestone chart.

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W1998

PROGRAM ELEMENT TITLE: Consolidated Training Systems

PROJECT TITLE: JTCTS

Milestones	FY 95	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	To Complete		
Phases		Engineering & Manufacturing Development (Phase I)							Follow-on Development (Phase II)			(Phase III)		
							Production							
Milestones	Δ MS-II				Δ Program Review	Δ Program Review	Δ MS-III				Δ Program Reviews	Δ		
IOC						Δ IOC Rangeless CVW-5					Δ IOC Fixed Range (Fallon)	Δ IOC Fleet Range (LWTC)		
Contract Award or	Δ E&MD		Δ PDR (H/W) Δ CDR (H/W)			Δ LRIP 1	Δ LRIP 2	Δ FRP						
Deliveries					E&M		LRIP 1	LRIP 2	FRP					
DT&				IIA	IIB IIC IID IIE		IIF				IIIB			
OT&						IIA	OPEVAL IIB				IIIB			
USN PIP Qty				(RDT&E)	0	22	56	65	66	76	78	365	770	
USAF PIP Qty				0	0	12+	36	36	75	51	70	700	980	
TOTAL				12	0	34+	92	101	141	127	148	1065	1750	
	FY 95	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05			

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EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER:

W1998

PROJECT TITLE:

JTCTS

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Mobile Rangeless EMD Development	C/CPAF	Raytheon	78,278	3,635	1Q/99	4,284	1Q/00			0	85,577	85,577
Award Fee	C/CPAF	Raytheon	5,714							0	5,714	5,714
Fixed Range EMD Development	C/CPAF	Raytheon	0					4,716	1Q/01	0	4,716	4,716
Award Fee	C/CPAF	Raytheon	0					425	1Q/01	0	425	425
System Engineering (Misc. less than \$1M)	Various	Various	24,863	1,098	1Q/99	1,800	1Q/00	1,450	1Q/01	CONT.	CONT.	
Rangeless Training System												
	C/CPFF	Raytheon	0	1,873	3Q/99					0	1,873	1,873
	C/CPFF	SAIC	0	2,392	3Q/99					0	2,392	2,392
	C/CPFF	Metric Sys Corp	0	588	3Q/99					0	588	588
	Various	Various	0	3,201	3Q/99					0	3,201	
Subtotal Project Development			108,855	12,787		6,084		6,591		CONT.	CONT.	
Remarks												
Percent of award fee that was actually awarded in prior years is 54% (3.1M).												
Miscellaneous	Various	Various	8,290	1,147	1Q/99	484	1Q/00	886	1Q/01	CONT.	CONT.	
Subtotal Support			8,290	1,147		484		886		CONT.	CONT.	
Remarks												
Miscellaneous	Various	Various	1,361	903	1Q/99	1,260	1Q/00	306	1Q/01	CONT.	CONT.	
Subtotal Test & Evaluation			1,361	903		1,260		306		CONT.	CONT.	
Remarks												
Total Cost			118,506	14,837		7,828		7,783		CONT.	CONT.	

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Exhibit 3, RDT&E Cost Analysis
(Exhibit R-3, Page 24 of 35)

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W2124

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Air Warfare Training Development

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
W2124 Air Warfare Training Development	1,780	2,119	2,157	1,918	2,149	2,201	2,246	CONT.	CONT.
TOTAL	1,780	2,119	2,157	1,918	2,149	2,201	2,246	CONT.	CONT.

Quantity of RDT&E Articles: Not Applicable.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops new training system technologies for use in naval aviation training. Products from this effort directly support the Marine Corps Aviation Simulation Master Plan and will support the development and design of future naval aviation training, mission rehearsal systems. Tasks include: 1) Advanced training systems development to provide for transportable, modular, High Level Architecture (HLA) compliant, high fidelity Mission rehearsal capabilities. Mission rehearsal is defined as the practice of planned tasks and functions critical to mission success using a true-to-life, interactive representation of the expected operating environment. Technologies to be developed and integrated include helmet mounted and/or flat panel displays, photographic quality image generation, advanced environmental effects models, radar/infra-red/electro-optic and acoustic sensor simulations; and 2) the Aviation Training Technology Integration Facility (ATTIF) which is a man-in-the-loop test bed for the integration of software, hardware, and networked systems. ATTIF will include a HLA node for participation in the fleet exercise synthetic battle space. This ATTIF capability provides a window to fleet aviators for critical comment, evaluation, and fine tuning of new and innovative technology before it is fielded.

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W2124

**PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development**

PROJECT TITLE: Air Warfare Training Development

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1999 ACCOMPLISHMENTS:

- (U) (\$474) Developed Image Generator performance specifications for rehearsal, training, and network-able PCs.
- (U) (\$320) Developed baseline night vision device (NVD) simulation performance specifications.
- (U) (\$876) Reached IOC for ATTIF network-able, re-configurable mission rehearsal device.
- (U) (\$110) Determined specification-level database attributes for IR, environmental and special effects modeling.

2. FY 2000 PLAN:

- (U) (\$505) Develop NVD simulation performance specifications for legacy systems integration.
- (U) (\$282) Demonstrate/evaluate combat special effects modeling (ATTIF).
- (U) (\$120) Develop draft performance specifications for combat special effects modeling.
- (U) (\$624) Demonstrate low-cost, network-able, PC-based IGs with photo-realistic databases (ATTIF).
- (U) (\$588) Develop initial performance specifications for modular weapons systems simulation.

3. FY 2001 PLAN:

- (U) (\$403) Demonstrate/evaluate re-configurable mission rehearsal devices (ATTIF).
- (U) (\$ 94) Develop performance specifications for re-configurable mission rehearsal devices.
- (U) (\$441) Achieve IOC for BFTT, JTIDS, JTCTS integration to ATTIF.
- (U) (\$619) Develop initial performance specification for fused cockpit imagery.
- (U) (\$600) Develop initial performance specification for advanced IG to human systems integration.

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W2124

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Air Warfare Training Development

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	1,847	2,131	2,192
(U) Appropriated Value:	2,053	2,131	
(U) Adjustments from President's Budget:	-67	-12	-35
(U) FY 2001 President's Budget Submit:	1,780	2,119	2,157

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY1999 reflects a \$7 thousand decrease for Small Business Innovative Research assessment, a \$51 thousand decrease for reprioritization of requirements within the Navy, and a \$9 thousand decrease for revised economic assumption. FY2000 reflects a \$12 thousand decrease for an Across the Board Congressional Rescission. FY2001 reflects a net decrease of \$4 thousand due to Strategic Sourcing Plan savings and Navy Working Capital Fund (NWCF) adjustments offset by a \$1 thousand increase for Military and Civilian Pay, a \$18 thousand decrease for economic assumptions, and a \$14 thousand decrease for reprioritization of requirements within the Navy.

(U) Schedule: N/A

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>
APN Line 9 BA-1 (U1AV) UH-1Y/AH-1Z (4BN/4BW)		0	0	42,777	0	8,810	0	51,587
APN Line 51 BA-7 (47C2) Common Ground Equipment (USMC Aviation Simulation Master Plan)	0	20,370	10,592	0	22,647	0	0	53,609

Related RDT&E

(U) P.E. 0603707N, Project #R1773, Sub-Project Title: Transportable Strike Assault Rehearsal System (T-STARS)

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT NUMBER: W2124

PROJECT TITLE: Air Warfare Training Development

(U) D. ACQUISITION STRATEGY:

This is a non-acquisition program with no specific acquisition strategies.

(U) E. SCHEDULE PROFILE:

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To Complete</u>
(U) Program Milestones:		*1Q/00 NAPDD Implement Integration Plan		1Q/03 NAPDD Implement Integration Plan
(U) Engineering Milestones:	3Q/99 PC IG Sensor Sim	2Q/00 PC IG Perf Spec	3Q/01 Re-config MR devices	
(U) T&E Milestones:	4Q/99 IOC ATTIF network PC IG demo	3Q/00 PC IG photo-realistic Db	4Q/01 Re-config MR device demo 4Q/01 IOC for BTFF, JTIDS, JCTCS integ to ATTIF	
(U) Contract Milestones				

* Non-Acquisition Program Definition Document for Air Warfare Training Development.

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EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

DATE: Feb 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: W2124
PROJECT TITLE: Air Warfare Training Development

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Developmental Misc. (Misc less than \$1M)	MPIR/WX	Miscellaneous	7,186	834	11/98	1,247	11/99	1,274	11/00	CONT.	CONT.	
Subtotal Product Development			7,186	834		1,247		1,274		CONT.	CONT.	
Engineering and Technical Support	RC	Gen Physics	749	100	11/98	110	11/99	110	11/00	CONT.	CONT.	
Subtotal Support			749	100		110		110		CONT.	CONT.	
Developmental (Misc. less than \$1M)	WX	Misc/ATTIF	1,154	815	11/98	731	11/99	742	11/00	CONT.	CONT.	
Subtotal Test & Evaluation			1,154	815		731		742		CONT.	CONT.	
Travel	WX	NAWC-AD	710	31	11/98	31	11/99	31	11/00	CONT.	CONT.	
Subtotal Management			710	31		31		31		CONT.	CONT.	
Total Cost			9,799	1,780		2,119		2,157		CONT.	CONT.	

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEB 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: X1823

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Training and Modeling Systems (TMS)

(U) COST (Dollars in thousands)

PROJECT

NUMBER &

TITLE

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

TO

TOTAL

ACTUAL

BUDGET

ESTIMATE

ESTIMATE

ESTIMATE

ESTIMATE

ESTIMATE

COMPLETE

PROGRAM

X1823 Training and Modeling Systems (TMS)

9,783

8,177

9,579

9,077

8,631

7,457

7,636

CONT

CONT

A (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The employment of naval forces in a multi-dimensional warfare environment is a complex operational problem. To counter the threat expected in hostile environments, naval officer training must be provided for all mission areas on a real-time basis at the Battle Force/Group level. This training must focus on tactical decision-making, tactics development/evaluation, and operational planning/execution. Shore-based classroom training and at-sea exercises have historically satisfied the Battle Group tactical training requirement. However, the effectiveness of this approach to training was reduced by the lack of a real-time decision-making environment during shore-based training and the reduction in number and scope of at-sea exercises. This requirement is fulfilled by the Joint Simulation System (JSIMS), which will replace the Enhanced Naval Warfare Gaming System (ENWGS), a legacy modeling and simulation training system.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Simulation System (JSIMS) will replace ENWGS and provide expanded functionality. The mission of JSIMS is to provide a readily available, operationally valid synthetic environment for the Commanders-in-Chief (CINCs), their components, other Joint organizations and the Services to: jointly train, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, define operational requirements, and provide operational inputs to the acquisition process. In short, JSIMS will provide not only an improved certified capability for inter-Service operability but also an enhanced Joint Battle Staff training capability for the warfighting CINCs. All service Executive Agents (EAs) and Development Agents (DAs) are required to contribute to the initial population of the JSIMS architecture with facilities, services and tools, to meet an Initial Operational Capability (IOC) for Joint Task Force (JTF) training of no later than March 2002. In keeping with the premise that the Services/components are best able to define their own capabilities and functionality, the JPO is working in concert with the Services to import Service-provided functionality such as land, air, naval and littoral warfare to JSIMS. The JPO will integrate these functionalities for use by Joint Army/Marine/Navy/Air Force exercise. JSIMS development is incremental. In June 1994 the Services and Director Joint

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEB 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: X1823

**PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development**

PROJECT TITLE: Training and Modeling Systems (TMS)

Program Office signed a Memorandum Of Agreement (MOA) to establish JSIMS; a critical next-generation Modeling and Simulation (M&S) system. The long term goal of the agreement is to integrate the range of missions of the Armed Forces within a common framework. That framework provides a balanced melding of live, virtual and constructive M&S representations, with Command, Control, Communications, Computers and Intelligence (C4I) fully supported, and interfaces using real-world equipment. As the Maritime Warfare EA, OPNAV N7, on 29 Aug 1995, assigned NAVSEA as the JSIMS Maritime Development Agent (DA). The objective of the JSIMS Maritime portion of the JSIMS Program is to train at all levels of command, in all warfare areas, including joint and service specific training. JSIMS Maritime is developing the Maritime Mission Space Objects for the JSIMS Program, as well as selected portions of the core infrastructure and services to be determined when the Joint Object Model is partitioned. PROGRAM WAS TRANSFERRED FROM NAVSEA TO SPAWAR IN FY99.

1. (U) FY 1999 ACCOMPLISHMENTS:

- (\$9,783) - Completed Build N1 Engineering & Development and T&E; completed Build N2 Engineering & Development. Began Engineering & Development on Build N3; accomplished work on Domain Design, Domain Analysis, and Software Construction. Initiated Database Development and Integration and Test. Initiated Software Version 1.1 Development. Developed JSIMS enterprise security architecture; Conducted Engineering & Development of C4I system interfaces; Implemented High Level Design architecture for all software models; conducted Verification & Validation of Build N1, N2, and N3 software models.

2. (U) FY 2000 PLAN:

- (\$4,498) - Complete Build N3, which includes all the models and functionality required to fully meet the JSIMS ORD for IOC and conduct demonstration of functionality.
- (\$1,495) - Conduct Database Development, Software Construction, and Integration and Test. Continue work on Software Version 1.1.
- (\$2,184) - Complete security Engineering & Development for Build N2 Collaborative Event. Conduct Build N2 and N3 Collaborative Events in preparation for FY 2002 IOC.

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEB 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: X1823

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Training and Modeling Systems (TMS)

3. (U) FY 2001 PLAN:

- (\$2,157) - Complete post-Collaborative Event Development, Integration, and Testing.
 - (\$3,190) - Complete security development for IOC exercise; Develop and Conduct IOC exercise.
 - (\$4,232) - Continue Engineering & Development of Version 1.1 for release to Navy training sites. Begin Engineering & Development of Software Version 1.2.
- B.** (U) PROGRAM CHANGE SUMMARY: FY-99 : Additional JSIMS Development (+\$1,855K); Revised Economic Assumptions (-\$19K); Civilian Personnel Underexecution (-\$14K); FY-99 SBIR/STT Transfer (-\$98K); BTR 99-49, LOCO GYSI Reprogramming (-\$70K); Inflation Savings (-\$37K); FY-99 BTRs (-\$1K); FY-00: Across-the-Board Reduction (-\$37K); Across-the-Board Rescission Bal (-\$9K); FY-01: JSIMS Realignment(-\$1,000K); SSP (Contracts) (-\$9K); NWCF Rates-NCCOSC (-\$32K); SSC A76 (-\$3K); NWCF Rates-Naval Surface (+\$1K); Fix project for Outsourcing ADJ (+\$131K); PBD411: ICC 0611 (NSWC) (+1K); PBD411: ICC 0614 (SPAWAR) (+\$12K); PBD-606: Mil/Civ Pay Rates - SPAWAR (+\$5K); PBD604: Nonpay Pur Inflation (-\$67K); PBD022C2: Active Navy Ops (-\$25K).

C. (U) OTHER PROGRAM FUNDING SUMMARY; (Dollars in thousands)

	<u>FY99</u>	<u>FY00</u>	<u>FY01</u>
OPN (TTDS)	1,019	0	0
O&MN (TTDS)	1,555	1,881	2,565
OPN (TMS)	0	1,005	1,341
O&MN (TMS)	0	236	2,159

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEB 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: X1823

PROGRAM ELEMENT TITLE: Consolidated Training Systems
Development

PROJECT TITLE: Training and Modeling Systems (TMS)

(U) SCHEDULE PROFILE:

FY 1999

FY 2000

FY 2001

(U) Program Milestones

(U) Engineering Milestones

3Q Build 1 (B1) Core Infra-
Structure (CI)
Test Harness, URP Wkstn

2Q Build 2 CI
2Q Build 3 CI

2Q Build 3 Delivery

(U) T&E Milestones

4Q SERRT Demo
(Build 1 Core IS)

3Q B2 Integ/Test
Collaborative Event

2Q B3 Integ/Test
Collaborative Event
2Q Full System Test

(U) Contract Milestones: N/A

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EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

DATE:

FEB 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: X1823

PROJECT TITLE: Training and Modeling Systems (TMS)

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Systems Engineering	WR/RCP	Various	2,035	1,251	11/98	1,205	11/99	1,457	11/00	CONT	CONT	N/A
Licenses	WR/RCP	SSCSD, CA		408	11/98	412	11/99	480	11/00	CONT	CONT	N/A
Tooling												
GFE												
Award Fees												
Subtotal Product Development			2,035	1,659		1,617		1,937		CONT	CONT	N/A
Remarks:												
* PY Total also includes Multiple Contractors under Performing Activity												
Development Support Equipment												
Software Development	WR/RCP	SSCSD, CA	9,964	2,927	11/98	2,092	11/99	2,346	11/99	CONT	CONT	N/A
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data	WR/RCP	SSCSD, CA*		2,318	11/98	1,606	11/99	1,904		CONT	CONT	N/A
GFE												
Subtotal Support			9,964	5,245		3,698		4,250		CONT	CONT	N/A

Remarks:

*PY includes Multiple Contractors under Performing Activity

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Exhibit R-3, RDT&E Cost Analysis
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EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

DATE: FEB 2000

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204571N

PROJECT NUMBER: X1823

PROJECT TITLE: Training and Modeling Systems (TMS)

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	Fy00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/RCP	Various	1,620	397	11/98	412	11/99	480	11/00	CONT	CONT	N/A
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			1,620	397		412		480		CONT	CONT	N/A
Remarks:												
*PY includes NSWC PHD under Performing Activity												
Contractor Engineering Support	WR/RCP	SSCSD, CA		1,250	11/98	1,207	11/99	1,351	11/00	CONT	CONT	N/A
Government Engineering Support	WR/RCP	SSCSD, CA		1,192	11/98	1,168	11/99	1,474	11/00	CONT	CONT	N/A
Program Management Support												
Program Management Personnel												
Travel	WR/RCP	SSCSD, CA		40	11/98	75	11/99	87	11/00	CONT	CONT	N/A
Labor (Research Personnel)												
Overhead												
Subtotal Management				2,482		2,450		2,912		CONT	CONT	N/A
Remarks:												
* PY includes Multiple Contractors under Performing Activity												
TOTAL COST			13,619	9,783		8,177		9,579		CONT	CONT	N/A
Remarks:												

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Exhibit R-3, RDT&E Cost Analysis
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